Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1.   (Withdrawn) A method for evaluating a fingerprint image, comprising the steps of:

obtaining a density of a reference point disposed within a fingerprint image and a density of a comparison point disposed at a position shifted from the reference point by a predetermined distance; and

evaluating the amount of fingerprint ridgeline information contained within the fingerprint image based upon a difference between the density of the reference point and the density of the comparison point.

2.   (Withdrawn) A method as in claim 1, wherein a plurality of reference points are provided within the fingerprint image and respective comparison points are provided in correspondence to each reference point, and the evaluating step comprises the steps of calculating the evaluation value for each reference point based upon a difference between the density of each reference point and the density of the corresponding comparison point, and evaluating the amount of fingerprint ridgeline information contained within the fingerprint image based upon the calculated evaluation value of each reference point.

3.   (Withdrawn) A method as in claim 2, wherein a plurality of comparison points are provided for each reference point; and the evaluating step further comprises the steps of obtaining a difference between the density of the reference point and the density of the comparison point for each comparison point that corresponds to the reference point, and calculating the evaluation value of each reference point based upon each calculated density difference.

4.   (Withdrawn) A method for evaluating a fingerprint image, comprising the steps of:

obtaining a density at each point on a reference line provided within a fingerprint image;

determining a characteristic of an oscillation signal, in which the density of each point obtained in the density obtaining step is assumed to form a continuous waveform signal along the direction of the reference line; and

evaluating the amount of fingerprint ridgeline information contained within the fingerprint image based upon the result obtained in the characteristic determining step.

5.   (Withdrawn) A method as in claim 4, wherein the characteristic of the oscillation signal is a spectrum characteristic of a spectrum obtained by frequency converting the waveform signal, in which the waveform signal is assumed to be a time series signal.

6.   (Withdrawn) A method as in claim 5, wherein the evaluating step comprises the step of evaluating the amount of fingerprint ridgeline information contained within the fingerprint image based upon a ratio of the magnitudes of a high frequency component and a low frequency component within the obtained spectrum.

7.   (Withdrawn) A method as in claim 5, wherein the evaluating step comprises the step of evaluating the amount of fingerprint ridgeline information contained within the fingerprint image based upon the size of a spectrum peak of the obtained spectrum.

8.   (Withdrawn) A method as in claim 4, wherein a plurality of reference lines are provided within the fingerprint image, the characteristic determining step comprises the step of obtaining a spectrum characteristic for each of the plurality of provided reference lines, and the evaluating step comprises the step of evaluating the amount of fingerprint ridgeline information contained within the fingerprint image based upon each spectrum characteristic obtained from each reference line.

9. (Withdrawn) A method as in claim 8, said reference lines are provided orthogonally in two directions within the fingerprint image.

10. (Currently Amended) A method for evaluating a fingerprint image, comprising the steps of:

obtaining a density pattern of an established ~~area~~ straight line provided within a fingerprint image;

obtaining a density pattern of a comparison ~~area~~ straight line provided by shifting the established ~~area in predetermined direction~~ straight line in a direction parallel to the established straight line and by predetermined distance;

calculating a similarity between the two density patterns obtained in said processing steps; and

evaluating the amount of noise contained within the fingerprint image based upon the amount of the similarity calculated in said calculation step.

11. (Currently Amended) A method as in claim 10, wherein ~~the established area is a straight line provided within the fingerprint image, the comparison area is a straight line provided to correspond with the provided straight line, and~~ the similarity of the density pattern of each ~~area~~ straight line is evaluated by the similarity ~~of a waveform signal, wherein the density of the points on the straight line composing each area is regard as a continuous waveform signal in the direction of the straight line.~~ between a waveform signal composed of the density pattern on the established straight line and a waveform signal composed of the density pattern on the comparison straight line.

12. (Currently Amended) A method as in claim 11, wherein the similarity calculating step comprises the step of obtaining ~~spectral characteristics~~ one dimensional spectral characteristics by frequency converting the waveform ~~signal, while regarding it to be~~

~~a time series signal,~~ signal and calculating the similarity between the ~~spectrum characteristics~~ spectral characteristics of the two corresponding waveform signals.

13.   (Original) A method as in claim 11, wherein the similarity calculating step comprises the step of obtaining an average pitch from said waveform signal, and calculating the similarity based upon a difference between the average pitches of the two corresponding waveform signals.

14.   (Withdrawn) A fingerprint verification device comprising:

means for collecting a fingerprint and outputting a fingerprint image;

means for obtaining a reference point density from the fingerprint image, which was collected by said fingerprint image collection means, wherein the density of one or a plurality of the reference points is provided within the fingerprint image;

means for obtaining a comparison point density from the fingerprint image, which was collected by said fingerprint image collection means, the density of one or a plurality of the comparison points, established corresponding to each reference point established within the fingerprint image, is separated by a predetermined distance from the corresponding reference points;

means for evaluating the amount of fingerprint ridgeline information contained within the fingerprint image based upon a difference between the density of the comparison points that correspond to each reference point, which was obtained by the comparison point density obtaining means, and the density of the reference point, which was obtained by the reference point density obtaining means; and

means for registering the fingerprint and/or collating the fingerprint using the fingerprint image when the evaluating means determines that the fingerprint image contains more than a predetermined amount of fingerprint ridgeline information.

15.   (Withdrawn) A fingerprint verification device comprising:

means for collecting a fingerprint and outputting a fingerprint image;

means for obtaining a reference line density of each point on one or a plurality of reference lines, which are provided within the fingerprint image, from the fingerprint image collected by the fingerprint image collecting means;

means for determining oscillation characteristics related to the oscillation of a waveform signal, in which the density of each point, which was obtained by the reference line density obtaining means, is assumed to form a continuous waveform signal in the direction of the reference line;

means for evaluating the amount of fingerprint ridgeline information contained within the fingerprint image based upon the oscillation characteristics determined by the oscillation characteristic determining means; and

means for registering the fingerprint and/or verifying the fingerprint using the fingerprint image when said fingerprint ridgeline information evaluating means determines that the fingerprint image contains more than a predetermined amount of fingerprint ridgeline information.

16.   (Currently Amended) A fingerprint verification device, comprising:

means for collecting a fingerprint and outputting a fingerprint image;

means for obtaining an established ~~area~~ straight line density pattern from the fingerprint image collected by the fingerprint image collecting means, the density pattern of one or a plurality of established ~~areas~~ straight lines being provided within the fingerprint image;

means for obtaining a comparison ~~area~~ straight line density pattern from the fingerprint image collected by the fingerprint image collecting means, the density pattern of the comparison ~~area~~ straight line provided within the fingerprint image corresponding to each established ~~area,~~ straight line, and being shifted away from said established ~~area~~ straight line

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by a predetermined distance ~~in a predetermined direction;~~ in a direction parallel to the established straight line;

means for calculating a similarity between two corresponding density patterns obtained by the respective density pattern obtaining means;

means for evaluating the amount of noise contained within the fingerprint image based upon the similarity calculated by the similarity calculating means; and

means for registering the fingerprint and/or verifying the fingerprint using the fingerprint image when the noise evaluation means determines that the fingerprint image contains less than a predetermined amount of noise.

17.   (New) A method as in claim 13, wherein a plurality of established straight lines are provided within the fingerprint image and a comparison straight line is provided in correspondence to each straight line, and the evaluating step comprises the steps of calculating the evaluation value for each established straight line based upon a difference between the average pitches of the two corresponding waveform signals, and evaluating the amount of noise contained within the fingerprint image based upon the calculated evaluation value of each established straight line.

18.   (New) A method as in claim 17, wherein the average pitch is obtained by using an autocorrelation function.

19.   (New) A method as in claim 18, wherein the average pitch is obtained by using linear prediction analysis.

20.   (New) A method as in claim 12, wherein the established straight line extends along an x or y direction, and the comparison straight line is provided by shifting the established straight line by a width of one scanning line.

21.   (New) A method as in claim 20, wherein the spectral characteristic is a group delay spectral (GDS).

22.   (New) A fingerprint verification device as in claim 16, wherein the calculating means calculates the similarity of the density pattern of each straight line based upon a similarity between a waveform signal composed of the density pattern on the established straight line and a waveform signal composed of the density pattern on the comparison straight line.

23.   (New) A fingerprint verification device as in claim 22, wherein the calculating means obtains one dimensional spectral characteristics by frequency converting the waveform signal and calculates a similarity between the spectral characteristics of the two corresponding waveform signals.

24.   (New) A fingerprint verification device as in claim 22, wherein the calculating means obtains an average pitch from said waveform signal, and calculates the similarity based upon a difference between the average pitches of the two corresponding waveform signals.

25.   (New) A fingerprint verification device as in claim 24, wherein a plurality of established straight lines are provided within the fingerprint image and a comparison straight line is provided in correspondence to each straight line, and the evaluating means calculates an evaluation value for each established straight line based upon a difference between the average pitches of the two corresponding waveform signals, and evaluates the amount of noise contained within the fingerprint image based upon the calculated evaluation value of each established straight line.

26.   (New) A fingerprint verification device as in claim 25, wherein the calculating means obtains the average pitch by using an autocorrelation function.

27.   (New) A fingerprint verification device as in claim 26, wherein the calculating means obtains the average pitch by using linear prediction analysis.

28.   (New) A fingerprint verification device as in claim 23, wherein the established straight line extends along an x or y direction, and the comparison straight line is provided by shifting the established straight line by the width of one scanning line.

29.   (New) A fingerprint verification device as in claim 28, wherein the spectral characteristic is a group delay spectral (GDS).